Tube of the Month

F-124A & F-125A

In 1909, Federal Telegraph Company (FTC) reorganized in Palo Alto, California after acquiring the Poulsen Wireless Company. They were trying to develop very high-power telegraph transmitting systems using the Poulsen Arc technology. The U.S. Navy was a major client for these systems. By the start of WWII, much of the radio equipment used by the Navy was Federal Telegraph. The early operations of Federal Telegraph have been noted as the start of what would become Silicon Valley.

The production of transmitting vacuum tubes started after WWI with an association with Lee de Forest to produce oscillions. In the 1930s, most of the tube types they made were copies of tubes developed by other manufacturers especially Western Electric and RCA. In the 1940s, new designs were developed under a new name Federal Telephone and Radio (FTR). Two of the first were the 40 KW dissipation, water cooled, F-124A and F-125A triodes. The obvious difference between the two tubes was that the F-124A had two grid connections. Internally they had different grids. The F-124A had a mu of 40.5 and the F-125A had a mu of 4.75. The F-124A was designed to be a power amplifier and the F-125A was intended to be a modulator. The second grid connection on the F-124A was used to provide a terminal for the large, wide spaced neutralization capacitor. The dimensions of the tubes were the same with a length of 25.75 inches. Both tubes used the same water jacket that was also made by FTR. The filament for each tube was 27.2 volts at about 200 amps. The current was divided between 6 filament strands. The strands could be configured to operate on DC, single phase AC, 3 phase AC or 6 phase AC. Single phase operation extended tube life and limited the generation of hum. Maximum plate rating for the F-124A is 20,000 volts at 7 amps in class C as an amplifier. The F-125A when operated as a modulator in class B, is rated at a maximum of 15,000 volts at 10 amps on the plate.

The two tubes were intended to be used together in 50 KW AM broadcast stations. I bought the F-124A on the internet while sitting in a bar in La Paz, Baja California, Mexico before an XF2K IOTA operation. It looked so good.

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Norm N6JV

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F-125-A
MADE IN U.S.A.
FEDERAL TELEPHONE & RADIO